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CHAO, MICHAEL W				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,479

Applicant(s)

HAYIM, SHAUL

Examiner

Michael Chao

Art Unit

2492

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-14, 16 and 17 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-14, 16 and 17 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-C100)
- _____
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)

Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/30/2009 has been entered.

Response to Amendment

This action is in response to the Request for Continued Examination received on 1/28/2010 which drew reference to previously submitted claims and arguments on 11/30/2009. Claims 1-14, 16 and 17 are pending and directed to a method of compressing data transmitted over a communication line.

Response to Arguments

Applicant's arguments filed 11/30/2009 have been fully considered but they are not persuasive.

With respect to Applicant's argument (page 11) that Fallon does not teach a system that synchronizes "a data stream without using metadata and without placing indications within the data string showing wherein the data begins", is not persuasive. The above citation is a reference to Applicant's specification page 4 line 23 where it is

1 stated that the ADC server stores portions of the data without being aware of "file
2 names, wholeness of data, URLs, file types. As Fallon also processes only a stream of
3 data, it similarly operates without metadata and without placing indications.

4 With respect to Applicant's argument (pages 11-12) That Fallon does not teach
5 Applicant's system because it contains a dictionary, while Applicant's system stores
6 only "table with anchors and data blocks in which they were found . . . (see, e.g., page
7 16, lines 5-20)", is not persuasive. Applicant's specification discloses a dictionary (table,
8 above) on page 5 line 22, and while the dictionary does not store the data (Fallon's
9 dictionary does store data) as Applicant asserts; the specification on pages 16-17 lines
10 30-1 state that the block matching the dictionary is fetched from the cache. Therefore,
11 Applicant's invention, just as Fallon, stores the data and uses a dictionary and the
12 differences between Fallon and Applicant's invention are unclaimed. Applicant's further
13 arguments on page 12 regarding the practicality of keeping a dictionary of the data are
14 not persuasive in view of the specification on pages 16-17 lines 30-1.

15 Applicant's argument (page 12), that the amended claim recitation of "the
16 reference points being determined based on a probability of returning one anchor per
17 data range of a predetermined size" is not persuasive. As a general rule, any conditional
18 calculation based on input data, such as Applicant's or Fallon's, will have some
19 probability of returning a value per data range of a predetermined size. Therefore,
20 Fallon's "s consecutively similar characters in the input stream" will also have some
21 probability of happening per data range of a predetermined size. Applicant's further

description of the anchor determining function is irrelevant as they are unclaimed features.

Applicant's argument (page 13-14), that Fallon does not teach "reference points" is not persuasive. Reference points are locations in the data where a predetermined criterion is met, and places where data is retrievable from said storage unit, as claimed. Thus, a reference point is a location in the data where the coding dictionary has similar data, as seen in Fallon: "if Pstring is not empty upon the triggering of run-length encoding process, before the run-length encoding sequence is generated and output, the code word having an entry that matches the current value of Pstring is output" (Fallon column 8 line 40). Applicant's further argument that the range of content is not 'in correlation with' said reference points is not persuasive as it is the set of consecutively similar characters (Fallon column 8 line 28) that trigger the run-length encoding, and thus trigger the output of the codeword. While Applicant further argues that the dictionary will be accessed regardless, it is the output of the codeword that is significant, which is triggered by the consecutively similar characters (see above).

Applicant's further arguments depend on those addressed and are not persuasive for the reasons discussed.

The claimed invention features 'anchor', 'reference points' and 'digital signature'; however, the claim lacks specifics regarding how anchors are determined, how the reference points are used to identify 'substantially identical pieces of data retrievable from [the] storage unit' and how the digital signature is utilized with respect to the

1 anchor and the reference point; generally as outlined in Applicant's specification on
2 pages 14-16. Without further specification, a broadest reasonable interpretation on the
3 claims are reasonably anticipated by dictionary-coding, as seen in Fallon (above). In the
4 interests of accelerated prosecution, a new rejection has been provided below which is
5 believed to be more relevant to Applicant's disclosure pages 14-16. Nonetheless, further
6 definition of 'anchor', 'reference points' and 'digital signature' would be useful to
7 distinguish over the prior art of record, as well as the new rejection.

8
9 **Examiners Note**

10 Claims 2 and 17 recite "Further comprising notifying the remote sender to stop
11 delivering intended incoming pieces of data, said incoming pieces of data being
12 retrievable from the data storage unit". Support for this limitation seems to be found
13 solely in Applicant's specification on page 10 line 20.

14 For context, the independent claims discuss a system embodied by blocks 61
15 and 62 of Figure 5, where data is received at 61 from remote sender 69. The majority of
16 the specification discloses how data is replaced with references to cached data between
17 ADC servers 61 and 62. A step in Applicant's disclosure recites that "Upon receiving a
18 packet, it is being searched for an anchor, and when found, a digital signature is
19 computed by a hash function . . ." (page 16 line 27). Further the specification discloses
20 that the ADC server stores portions of the data without being aware of "file names,
21 wholeness of data, URLs, file types, and data origin or destination" (page 4 line 23).
22 Applicant's method therefore operates by parsing packets already received from a

remote sender, and without attention to the source or destination. Rather, the system appears to solely operate on data that is sent between servers 61 and 62 over link 63 (Figure 5). Thus, claims 1, 14 and 16 appear directed to an egress (outgoing) data operation.

The notification of a remote sender 69 would then be an operation performed on the ingress (incoming) data side of server 61. There appears to be no associated discussion with how server 61 would determine that the data from remote sender 69 is locally stored. Moreover, given the disclosure of operating on already received packets (page 16 line 27) and lack of knowledge with regard to their contents (page 4 line 23) it seems impossible for server 61 to know that future data would be retrievable locally. Therefore, the limitations of claims 2 and 17 seem to be done separate from and by some other process than the currently disclosed invention.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-14, 16 and 17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-14, 16 and 17 recite a system claim; however the elements themselves may comprise solely software. A system that is software per-se is not statutory subject matter since software is none of a process, machine, manufacture nor composition of

1 matter. The physical element "computer readable medium" is a judicial exception to the
2 statutory subject matter (See Below).

3 Claims 1-14, 16 and 17 are rejected under 35 U.S.C. 101 because the claimed
4 invention is directed to non-statutory subject matter. Claims 1-14, 16 and 17 recite a
5 "computer readable medium". Broadly interpreted a computer readable storage medium
6 may include transitory storage mediums such as a transmission line storing a
7 propagating signal. A transitory medium is not patentable subject matter, see *In re*
8 *Nuijten*, 500 F3d 1346, 84 USPQ2d 1495 (2007). The examiner suggests rewording to
9 explicitly exclude transitory media such as "non-transitory" media.

10 Claim 14: While method claims are generally exempt from the software per-se
11 (machine) 101 analysis, claim 14 recites "accessing a computer readable medium
12 containing instructions for controlling a computer system, the instructions comprising
13 computer readable code for implementation of:". The claim therefore requires the
14 "computer readable medium". The MPEP states: "Note that an apparatus claim with
15 process steps is not classified as a "hybrid" claim; instead, it is simply an apparatus
16 claim including functional limitations." (MPEP 2106 (IV)(B)); Therefore claim 14 is a
17 system claim because it discloses physical elements.

18
19 **Cited Prior Art**

20 The following references are relied upon in the grounds of rejection detailed
21 below.

22 Harlan et al. (US 6,076,084) patented in 2000.

Chakrabarti (Low-Bandwidth Web Access with Tandem Proxies) published in 2002.

Rhea et al. (Value-Based Web Caching) published in 2003.

Kawahara et al. (US 7,233,974) filed in 2002.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 7-12, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakrabarti (Low-Bandwidth Web Access with Tandem Proxies) in view of Rhea et al. (Value-Based Web Caching).

With respect to claims 1, 14 and 16: Chakrabarti discloses a system directed to reducing data volume over low bandwidth transmission lines. (Figure 2-1) this is done by first segmenting the input data into blocks (e.g. Figure 3.6) these blocks are compared to blocks in a database using a special hash function (Locality-Sensitive Hashing, Page 42) that is used to find similar blocks that are stored in a database (3.4.3 Fast Similarity Search, Page 42). Once the similar blocks from the database are discovered, the difference between the incoming stream and stored block are found the block index and difference are output to the receiving proxy (3.4.2 Block Encoding, page 40). This algorithm is a species of differential coding (Byte-Level n-Diff).

1 A communication server (Chakrabarti Figure 2-1, Encoding Proxy) configured to
2 deliver a data stream from a remote sender (Chakrabarti Figure 2-1, America and
3 Europe: Web Portals) to a remote destination (Chakrabarti Figure 2-1, Decoding Proxy)
4 over a communication network, (Chakrabarti Figure 2-1, America and Europe:
5 International Internet Link) the communication server comprising:

6 A data storage unit comprising a computer readable medium accessible thereto;
7 (Chakrabarti page 40, "cached database")

8 An identification unit configured to identify pieces of data from an intended
9 incoming data stream ("So now when we calculate the LSH of a source block, if there is
10 a matching hash code in the cache database, then we know there is a template block
11 that is likely to be within a small Hamming distance." Chakrabarti page 43), to be
12 received from the remote sender according to at least one digital signature that is a
13 function of data contained in said pieces ("The ideal hash function for the n-diff similarity
14 search is one that maps sequences close in hamming distance to hash codes that are
15 near each other" Chakrabarti page 42, the LSH hash of above), and configured to
16 identify substantially identical pieces of data ("Two strings are said to be a hamming
17 distance k apart if and only if they differ in exactly k symbols." Chakrabarti page 40),
18 retrievable from said storage unit, according to said at least one digital signature
19 ("Rather than trying to find a cached block that matches the source block identically, we
20 try to find the cached block that is most similar to the source block" Chakrabarti page
21 40; the source block is the stored block, which is compared to the input data in
22 Chakrabarti page 43);

1 A replacement unit configured to replace the pieces of data from the intended
2 incoming data stream with the substantially identical pieces of data retrievable from said
3 data storage unit according to said reference points. ("Three pieces of information must
4 be transmitted: The ID of the most similar cached block, The byte positions where the
5 cached and source blocks differ, The differing symbols themselves." Chakrabarti pages
6 40-41)

7 Chakrabarti does not disclose variable block boundaries, as claimed: An anchor-
8 determination unit configured to determine locations in the data stream where
9 predefined groups of characters from the data stream fulfill a predetermined criterion,
10 the respective locations of such groups being reference points to the respective digital
11 signature associated with the pieces of data in each group, said reference points being
12 computed by said identification unit and being determined without using metadata and
13 without prior placing of indications within the data stream showing wherein the data
14 begins, the reference points being determined based on a probability of returning one
15 anchor per data range of a predetermined size; and

16 Rhea's teaches a system wherein a web proxy receives data for a client (Figure
17 2) and then breaks the data stream up into blocks (Figure 4). The block boundaries are
18 determined by a function of the data in order to prevent small changes in the data from
19 changing the block boundaries (Figure 4, anchor), the blocks are found by performing
20 an MD5 hash for efficiency (Figure 5 and section 2.1). Rhey's explicitly discusses that
21 his algorithm may be applied to delta encoding to yield further efficiencies (page 8
22 section 4). As claimed:

1 An anchor-determination unit ("2.2 Choosing Block Boundaries" Rhea page 3)
2 configured to determine locations in the data stream where predefined groups of
3 characters from the data stream fulfill a predetermined criterion ("We can place a block
4 boundary before byte l in a resource if the value of f on the n bytes proceeding byte l is
5 0. Since f is uniform and random, we expect to evaluate it on average 2048 times before
6 finding a zero" Rhea page 3 section 2.2), the respective locations of such groups being
7 reference points to the respective digital signature associated with the pieces of data in
8 each group ("we break the data for a resource into blocks of approximately 2kB each,
9 and name each block by its image under a secure hash function" Rhea page 2 section
10 2.1), said reference points being computed by said identification unit and being
11 determined without using metadata and without prior placing of indications within the
12 data stream showing wherein the data begins ("it is oblivious to data format, it requires
13 no understanding of HTML syntax" Rhea page 2, bullet 2), the reference points being
14 determined based on a probability of returning one anchor per data range of a
15 predetermined size (See above; Rhea page 3 section 2.2); and

16 A person of ordinary skill in the art at the time of invention would have modified
17 Chakrabarti with the variable block boundaries of Rheas by utilizing the block
18 determination function of Rheas to find the block boundaries used in Chakrabarti ("2.2
19 Choosing Block Boundaries" Rhea page 3). It would have been obvious at the time the
20 invention was made to a person of ordinary skill in the art to modify Chakrabarti with
21 Rhea in order to prevent small byte changes from making the blocks all appear different
22 (Discussed in Rhea section 2.2).

1
2 With respect to claim 5, Chakrabarti in view of Rhea teaches: wherein the
3 packets are stored in the data storage unit in blocks of variable size which is determined
4 according to an anchor location on the original data stream. ("2.2 Choosing Block
5 Boundaries" Rhea page 3)

6 With respect to claim 7, Chakrabarti in view of Rhea teaches: wherein the digital
7 signature is calculated from a predetermined number of bytes of data ("So now when
8 we calculate the LSH of a source block, if there is a matching hash code in the cache
9 database, then we know there is a template block that is likely to be within a small
10 Hamming distance." Chakrabarti page 43), the location of said bytes in the data stream
11 is in correlation with at least one anchor ("Three pieces of information must be
12 transmitted: The ID of the most similar cached block, The byte positions where the
13 cached and source blocks differ, The differing symbols themselves." Chakrabarti pages
14 40-41), and the at least one anchor is a pointer to a location in the data stream having a
15 compatibility with the predetermined criterion ("2.2 Choosing Block Boundaries" Rhea
16 page 3).

17 With respect to claim 8, Chakrabarti in view of Rhea teaches: wherein the
18 predetermined criterion is a function of data contained in said pieces ("We can place a
19 block boundary before byte l in a resource if the value of f on the n bytes proceeding
20 byte l is 0. Since f is uniform and random, we expect to evaluate it on average 2048
21 times before finding a zero" Rhea page 3 section 2.2) of data and is independent of a

1 title, address or routing information of said data. ("it is oblivious to data format, it
2 requires no understanding of HTML syntax" Rhea page 2, bullet 2)

3 With respect to claim 9, Chakrabarti in view of Rhea teaches: wherein the
4 function is responsive to a predetermined character combination such that an anchor is
5 assigned upon recognition of said predetermined character combination. ("We can
6 place a block boundary before byte l in a resource if the value of f on the n bytes
7 proceeding byte l is 0. Since f is uniform and random, we expect to evaluate it on
8 average 2048 times before finding a zero" Rhea page 3 section 2.2)

9 With respect to claim 10, Chakrabarti in view of Rhea teaches: wherein the
10 predetermined character combination is a string of predefined characters. ("We can
11 place a block boundary before byte l in a resource if the value of f on the n bytes
12 proceeding byte l is 0. Since f is uniform and random, we expect to evaluate it on
13 average 2048 times before finding a zero" Rhea page 3 section 2.2: thus the characters
14 are predefined in that there is a known set of characters that will yield a 0. To elaborate,
15 knowing the equation that triggers a block boundary one also knows at least one set of
16 characters, a predefined set of characters, that will trigger the block boundary. As the
17 term 'comprising' is open ended it does not preclude the equation from also being
18 triggered from other, unknown sets of characters. Therefore, to distinguish from the
19 process of Rhea it would be necessary to, for example define the character combination
20 or make the "predefined set of characters" exclusive.)

21 With respect to claim 11, Chakrabarti in view of Rhea teaches: wherein a set of
22 anchors is assigned to a respective piece of data, each anchor from the set is in

1 correlation to an n-tuple location in said respective piece of data ("We can place a block
2 boundary before byte l in a resource if the value of f on the n bytes proceeding byte l is
3 0. Since f is uniform and random, we expect to evaluate it on average 2048 times before
4 finding a zero" Rhea page 3 section 2.2), and wherein the function is a hash function
5 yielding a predefined value over the n-tuple ("we break the data for a resource into
6 blocks of approximately 2kB each, and name each block by its image under a secure
7 hash function" Rhea page 2 section 2.1).

8 With respect to claim 12, Chakrabarti in view of Rhea teaches: wherein the hash
9 function is selected from the group consisting of LFSR, CRC, SHA1, DES, and MD5.
10 ("MD5" Rhea page 2, section 2.1 overview)

11
12 Claims 2, 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable
13 over Chakrabarti (Low-Bandwidth Web Access with Tandem Proxies) in view of Rhea et
14 al. (Value-Based Web Caching) in view of Harlan et al. (US 6,076,084).

15 With respect to claims 2 and 17, Chakrabarti in view of Rhea does not teach:
16 further comprising a messaging unit for notifying the remote sender to stop delivering
17 intended incoming pieces of data, said incoming pieces of data being retrievable from
18 the data storage unit. Harlan teaches said limitation: ("The SPT is generated by
19 calculating a hash code for each segment which is defined by the selected delimiter.
20 The hash codes from the old file are transmitted to the sending computer. The sending
21 computer then sends to the receiving computers those segments in the new file that do
22 not have a hash code number which matches one of the hash code numbers from the

old file" Harlan Abstract). A person of ordinary skill in the art at the time of invention would have combined Chakrabarti in view of Rhea with the hash comparison of Harlan by using the system of Harlan between the Web Portals and Encoding Proxy (Chakrabarti Figure 2-1). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Chakrabarti in view of Rhea with the hash comparison of Harlan "In order to shorten the time required to transmit data" (Harlan Background).

With respect to claim 3, Chakrabarti in view of Rhea in view of Harlan teaches: wherein the remote sender is a PC delivering data. (Rhea Figure 2-1, web portals are PCs in that they perform the same tasks)

Claims 4, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakrabarti (Low-Bandwidth Web Access with Tandem Proxies) in view of Rhea et al. (Value-Based Web Caching) in view of Official notice.

Chakrabarti in view of Rhea does not explicitly disclose: TCP/IP. TCP/IP is the most common packet type used on the Internet, and well known in the art. Given that Chakrabarti and Rhea are directed to reducing transport volumes over the internet, it would have been obvious to one of ordinary skill in the art that the packets should be sent over TCP/IP. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to use TCP/IP with Chakrabarti in view of Rhea in order to be compatible with the standardized equipment of the Internet.

Chakrabarti in view of Rhea does not explicitly disclose: CRC, SHA1 or DES. SHA1 was known in the art at the time of invention to be alternatives to MD5 which Rhea discloses. A person of ordinary skill in the art at the time of invention therefore would have selected SHA1 as a substitute for MD5. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Chakrabarti in view of Rhea by using SHA1 instead of MD5 hash function because of personal preference, or greater collision resiliency.

Claims 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakrabarti (Low-Bandwidth Web Access with Tandem Proxies) in view of Rhea et al. (Value-Based Web Caching) in view of Kawahara et al. (US 7,233,974).

With respect to claim 13, Chakrabarti in view of Rhea does not teach: wherein the files are delivered through P2P communication. Kawahara teaches a peer to peer system (Title) which utilizes compression (column 4 line 29). A person of ordinary skill in the art at the time of invention would have modified Chakrabarti in view of Rhea with the teachings of Kawahara by utilizing the compression method of Chakrabarti in view of Rhea to compress communications between peers in a network. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to utilize the compression scheme of Chakrabarti in view of Rhea in a peer 2 peer setting in order to reduce the transmitted data over the network.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McManus (US 6,826,626) discloses a dictionary diff system.

Mattis et al. (US 6,292,880) discloses a caching system which utilizes filenames as well as file hashes.

Chan et al. (US 6,178,461) discloses HTML caching.

Clark et al. (US 5,455,576) discloses a multi-dictionary Lempel Ziv coding.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Chao whose telephone number is (571)270-5657. The examiner can normally be reached on 8-4 Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571)272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. C./

Examiner, Art Unit 2492

/saleh najjar/

Supervisory Patent Examiner, Art Unit 2492